



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Autumnal Coloration of Leaves

By G. E. STONE

At the meeting of the Society for Plant Morphology and Physiology held at Columbia University in December, 1899, a paper by Dr. D. T. MacDougal was read entitled "Influence of Inversions of Temperature and varietal Currents of Air upon the Distribution of Plants."

The observations upon which the results were obtained were made in Arizona, and among other things brought out in this paper was the fact that the autumnal colorations of leaves first showed itself on the low elevations.

During a brief discussion of the paper some other observers took exception to this statement, and it was stated that in the Allegheny region the autumnal tints first showed themselves upon the mountains, or higher elevations.

Our observations here in Massachusetts have coincided with those of Dr. MacDougal in Arizona, namely that the autumnal tints are first seen in the lowlands and not upon the hills and mountains. Whether there exists a different state of affairs in the Alleghenies which causes autumnal coloration to appear first upon the higher elevation, thus offering an exception to the condition of affairs in New England and Arizona would be well worth knowing.

According to our experience the first trees to show color are the red maple and poison sumac of the swamps. These species, on account of their location, are subject to the frosts when those in the highlands are not, and this factor alone would hasten their coloration.

There are, however, many external influences which determine coloration in trees which should be taken into consideration.

The exceedingly dry season of '95-'96 caused many upland trees to exhibit premature coloration on account of drought, and in like manner did the wet season of '97 cause many swamp species to show their tints as early as the middle of August on account

of extreme moisture. No two seasons seem to give rise to the same intensity of coloration. During seasons when there are no extreme differences in temperature intense scarlet colorations are lacking; on the other hand marked difference in temperature gives rise to an intense coloration of a great variety. The duration of coloration is also equally variable. Some seasons the color has a long period of duration while in others it is brief. The past season was one in which the transformation from green to yellow, scarlet and brown, and subsequent fall of the leaf was brief in the Connecticut Valley, a feature which, according to the writer, was hastened by excessive cloudy weather and rainfall during the period of transformation. The work of borers is also an important factor in the premature coloration of white and sugar maple trees. Borers however are generally confined to one or more limbs and the premature coloration of these, while the rest of the tree may still be green, is of common occurrence and they can be readily picked out at a glance.

In fact any abnormal condition of the limbs or tree whether brought about by insects or fungus intrusion or from purely physiological disorders are capable of giving rise to premature coloration in the leaves, which to the pathologist possess interest.